



EQUIPMENT:

Novec™ 1230

ISSUE No. & DATE:

14A-06H

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1.6.1 MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M (TM) Novec (TM) 1230 Fire Protection Fluid
MANUFACTURER: 3M
DIVISION: 3M Speciality Materials
ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

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Product Use:

Specific Use: STREAMING AND FLOODING FIRE PROTECTION

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
1,1,1,2,2,4,4,5,5,5-NONAFLUORO-4-(TRIFLUOROMETHYL)-3-PENTANONE	756-13-8	> 99.9

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Liquid
Odor, Color, Grade: clear colorless, low odor.
General Physical Form: Liquid

Immediate health, physical and environmental hazards:

This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards. This product is very low in acute toxicity. The LC50 (rat) is >10% v/v. The NOAEL for cardiac sensitization is also >10% v/v, providing a large margin of safety when used at effective design concentrations as a fire protection fluid.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Contact with the eyes during product use is not expected to result in significant irritation.

Skin Contact:

Contact with the skin during product use is not expected to result in significant irritation.

Inhalation:

Prolonged or repeated exposure, above recommended guidelines, may cause:
May be absorbed following inhalation and cause adverse systemic health effects.

Ingestion:

No adverse health effects are expected from swallowing.

Other Health Effects:

Prolonged or repeated exposure, above recommended guidelines, may cause:
Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

NOTE: Hydrolysis is not expected to be a significant degradation pathway. Product is highly insoluble in water and volatile, and use as a clean extinguishing agent would not typically result in releases to aquatic environments. Photolytic half-life: 3 -5 days
Persistent photolytic degradation product: Trifluoroacetic acid. Global Warming potential (GWP): 1. Zero Ozone Depletion Potential (ODP). Aquatic Toxicity: Not applicable.

SECTION 4: FIRST AID MEASURES

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.
Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.
Inhalation: If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.
If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. If signs/symptoms develop, get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>

5.2 EXTINGUISHING MEDIA

Product is a fire-extinguishing agent.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures:

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Unusual Fire and Explosion Hazards: Not applicable.



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Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line for more information on handling and managing the spill. Ventilate the area with fresh air. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue. Place in a metal container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid eye contact with vapors, mists, or spray. Avoid breathing of vapors, mists or spray. Contents may be under pressure, open carefully.

7.2 STORAGE

Keep container in well-ventilated area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment. Provide appropriate local exhaust ventilation on open containers. Provide local exhaust ventilation at transfer points.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact.

Select and use gloves and/or protective clothing to prevent skin contact based on the results an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

Gloves made from the following material(s) are recommended: Butyl Rubber.

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray.

Select a NIOSH approved respirator based on airborne concentration of contaminants and in accordance with OSHA regulations. Consult the current 3M Respirator Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

If respiratory protection is needed, a supplied air respirator is recommended. Organic vapor cartridge respirators are not recommended because they do not effectively absorb Novac 1230 vapors.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

None Established

Exposure guideline pending

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Liquid
Odor, Color, Grade:	clear colorless, low odor.
General Physical Form:	Liquid
Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Boiling point	49 °C
Vapor Density	11.6 [<i>Ref Std: AIR=1</i>]
Vapor Pressure	244 mmHg [<i>Details: @20C</i>]
Specific Gravity	1.6 [<i>Ref Std: WATER=1</i>]
pH	<i>Not Applicable</i>
Melting point	-108 °C
Solubility in Water	Nil
Evaporation rate	> 1 [<i>Ref Std: BUOAC=1</i>]
Volatile Organic Compounds	<i>No Data Available</i>
Percent volatile	100 %
VOC Less H2O & Exempt Solvents	<i>No Data Available</i>
Viscosity	0.5 centipoise



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SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong bases ; Amines ; Alcohols

Additional Information: Direct Sunlight, ultraviolet light

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Fluoride	During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not Determined

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Incinerate in an industrial or commercial facility in the presence of a combustible material.

Combustion products will include HF. Facility must be capable of handling halogenated materials.

As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste. Reclaim if feasible. For information on product return, contact your distributor.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

98-0212 -3028-3, 98-0212-3029 -1, 98-0212-3030-9, 98-0212-3031-7

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - Yes

STATE REGULATIONS

Contact 3M for more information.

INVENTORIES

One or more of the components of this product have been notified to ELINCS (European List of Notified or New Chemical Substances). Certain restrictions apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 3 Flammability: 0 Reactivity: 1 Special Hazards: None

National Fire Protection Association Hazard Codes are designed for use by firefighters, sheriffs, or other emergency response teams who are concerned with the hazards of materials under emergency conditions. These NFPA codes are intended to include the hazards of the products of decomposition or combustion in a fire situation.

HMIS Hazard Classification

Health: 0 Flammability: 0 Reactivity: 1 Protection: X - See PPE section.

HMIS codes are intended for use in everyday workplace settings to provide a rapid indication of the occupational hazards associated with chemicals used in the workplace.

Revision Changes: Not Applicable



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